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Ethnic Variations in Fertility: Microeconomic and Minority Group Status Effects

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ABSTRACT

In this study, we examine the fertility of the Chinese and the Portuguese in Canada to test two versions of the minority group status hypothesis in the context of microeconomic effects. We hypothesize that for the Chinese, the effects of gains in socioeconomic status would serve to reduce their fertility since they do not possess a particularized pronatalist ideology discouraging the use of efficient contraception. For the Portuguese, we predict that since they share a strong Catholic doctrine, the effects of gains in economic variables such as income would serve to raise their average family size. A regression decomposition analysis reveals that the observed average fertility differential between British and Chinese of .1600 of a child, is explained almost equally by discrepancies between these groups in compositional variables (such as husband's relative income, wife's earnings, age at marriage, etc.), and by insecurity effects (operationalized by slope effects -- the way in which the Chinese would translate unit gains in social demographic variables into childbearing if they had the same regression slopes as the British). The observed average fertility differential between the British and the Portuguese of -.1960 of a child, is largely explained by differences between these groups' compositional variable levels; insecurity effects (slope effects) explain very little of the observed differential.

Overall, the results suggest that while socioeconomic assimilation for the Chinese would result in a gain in fertility, their minority status insecurities would negate this effect, thus resulting in virtually no change in their observed fertility level. For the Portuguese, assimilation would imply a reduction in their average family size, since the overall effect of minority status insecurities is very small and positive.

1. Introduction

One major explanation of human reproductive behaviour is the microeconomic framework (Leibenstein, 1957; Becker, 1960; Freedman, 1963; Easterlin, 1975; 1973) which states that three factors: income, opportunity costs, and tastes, contribute to the fertility decision of couples. Many studies have been conducted to test this model of fertility (Becker, 1960; Mincer, 1963; Easterlin, 1969; 1973; Willis, 1973; Namboodiri, 1974; Simon, 1974; Ewer and Crimmins-Gardner, 1978; MacDonald and Rindfuss, 1978; Thornton, 1978; Freedman and Thornton, 1982).

One factor that has generally been overlooked by proponents of the microeconomic theory of fertility is ethnic minority group membership. Ethnicity can interact with relative economic status, and in the case of taste formation, some ethnic groups may share particularized norms and values about the importance of family and children, thus encouraging the development of strong preferences (tastes) for large families. Moreover, with increasing female labour force participation in our society, the opportunity costs of childbearing among minority group couples is probably greater than couples in the dominant group. Disadvantaged groups may find it financially necessary to have dual income households, making their opportunity costs of having children relatively high.

2. Minority Status, Relative Deprivation and Fertility

Easterlin (1973) postulated that perceived economic hardship, or relative deprivation of individuals, is a key determinant of fertility. In a stratified society members of disadvantaged minority groups are likely to experience discrimination and face greater difficulty in economic achievement. As a result, some groups may experience greater levels of economic insecurity and will consciously restrict their family size.

The hypothesis of minorities restraining their family size in order to attain a better economic status was first proposed by Van Heek (1956) and Day (1968), in the international context: That is, in the post-war years until the early 1960s, nations where Catholics comprised a significant minority group showed above average Catholic fertility; in countries where Catholics were the dominant religion, their fertility was observed as being average. The interpretation given for this differential was stated in terms of political insecurity leading to higher minority group fertility. Later, Goldscheider and Uhlenberg (1969), focusing mostly on the experience of minorities in the United States provided another version of this thesis. They predicted below average fertility for upwardly mobile groups which do not have a normative system encouraging large families and which do not prohibit the use of modern contraception among their members. They also postulated that if a group shares a particularized pronatalist ideology or is concerned with its numerical representation in

the larger society, its members will exhibit above average fertility.

In the context of the microeconomic model of fertility, the minority group status hypothesis implies ethnic variations in the relationship between income and fertility. The microeconomic theory posits a positive effect of income on fertility (e.g., Becker, 1960). The minority status hypothesis suggests that the positive relationship between income and fertility will be confounded by minority status effects. That is, for disadvantaged groups that do not have a pronatalist ideology, the effect of income on fertility should be negative, due to the social psychological insecurities associated with minority status. For a pronatalist subculture this relationship will be positive.

For example, Bean and Wood (1974) investigated the relationship between relative income and fertility among samples of Mexican Americans, Anglos and blacks, and found different patterns of relationship by ethnicity between measures of income and fertility. The effects of income on completed fertility were positive for Anglos and negative for blacks, whereas in the case of Mexican Americans, this relationship was positive. Increased income depressed childbearing among the blacks because most of them refrained from having large families in order to secure opportunities for upward mobility. The lack of a clearly defined pronatalist ideology within this group facilitated this relationship. For the Mexican Americans, who are known to be highly family

oriented and share a strong doctrine of Catholicism, increased income permitted them to have larger families, in accordance with the norms and values of their subculture.

3. Opportunity Costs, Minority Status and Fertility

The microeconomic theory of fertility hypothesizes a negative relationship between opportunity costs associated with childbearing and reproduction (Mincer, 1963). This concept is usually operationalized in terms of the wife's forgone earnings and opportunities in the work force. Accordingly, the greater the earning capacity of the wife, the higher the opportunity costs, and hence the lower the fertility (Crimmins-Gardner and Ewer, 1982; Veevers, 1983).

The opportunity costs of childbearing vary across social strata, and given that social status is associated with ethnicity (Reitz, 1980), it is important to examine how opportunity costs pertain to the explanation of minority group fertility patterns. The microeconomic framework would predict that if minority groups are disadvantaged in terms of income and educational attainment the opportunity costs of childbearing will be relatively low. However, in the context of minority status this prediction differs. For example, Bean and Swicegood (1985; 1982) found that the negative opportunity costs-fertility relationship for a minority is strongest under conditions of more restricted access to societal resources because the wife's income will contribute substantially to the family's financial circumstances. In

other words, under conditions of scarce resources, dual family income becomes a necessity for disadvantaged groups, and this fact serves to depress their fertility below that of the larger society (Bean and Marcum, 1978; Marcum and Bean, 1976). Therefore, we propose that the more disadvantaged the minority group, the greater the importance of wife's contribution to family income, and consequently, the greater the opportunity costs of having children.

4. Tastes, Minority Status and Fertility

Many factors determine one's tastes for children and material goods, such as number of siblings of the couple and background residence. Ethnicity is one of many significant factors in shaping individuals' preferences for material goods and children. An important proposition that derives from the microeconomic perspective is that with a change in status people modify their tastes (Easterlin, 1969). That is, a gain in social mobility leads to a stronger taste for high quality material goods and fewer, but high quality children.

In connection with the minority status insecurities hypothesis, we propose that for groups that do not possess a particularized pronatalist ideology, a gain in status will result in a greater preference for material goods and fewer children, resulting in a negative net relationship between social mobility and fertility.

For a pronatalist subculture this relationship should also be inverse, but of a relatively lesser magnitude. A gain in

economic status facilitates couples to afford more material goods, but the group's pronatalist norms would tend to attenuate the expected strong inverse association between changing tastes and family size (Reed et al., 1975; Bean and Wood, 1974; Beaujot et al., 1978; Trovato, 1981; Johnson and Lean, 1985).

5. The Study Groups

The Chinese and the Portuguese in Canada are investigated to test the hypotheses because their unique immigration histories and ethnic cultures seem to fit the conditions relevant for the application of the minority status and microeconomic perspectives.

In the formative stages of this country, the Chinese were considered to be the least preferable immigrant group in Canada (Baureiss, 1985; Ferguson, 1975; Tan and Roy, 1980). Highly segregated in both lower status occupations and in residential patterns, it was difficult for them to attain any measure of assimilation into the mainstream of Canadian society (Verma, et al., 1980). The recent generation of Chinese Canadians share a strong desire to seize educational opportunities (Verma, et al., 1980). While many of them still work in unskilled occupations, a significant number have gained employment in professional occupations (Verma, et al., 1980; Tan and Roy, 1980). This group is characterized as sharing a history of prejudice and discrimination, it is numerically small, and manifests strong desires for upward mobility, but

there is no evidence that the Chinese possess an identifiable pronatalist ideology discouraging the use of contraception.

The Portuguese are considered relatively recent immigrants to Canada, the majority of them arriving between 1960 and the early 1970s. Most Portuguese have little formal education and work in manual occupations or in manufacturing (Anderson and Higgs, 1976). They may be considered as having a pronatalist subculture because they are predominantly Catholic and share strong familistic values (Anderson and Higgs, 1976). In contrast to the Chinese, the Portuguese are not characterized by a unique history of prejudice and discrimination. Their relatively low socioeconomic status is largely a function of their recency of immigration and their low educational level.

6. Data and Methods

Our aim is to investigate how the relationships between relative income, opportunity costs, tastes for material goods and fertility are conditioned by minority status. The data for this analysis are taken from the Public Use Sample Tapes of the 1981 Canadian Census (PUST). The household file is used because it contains information on both spouses' social demographic characteristics. The two ethnic minority groups, the Chinese and the Portuguese, are compared to the British, who serves as a standard group in this analyses.

The unit of analysis is currently married families aged 15 to 49 whose marriages are intact (not interrupted by divorce or separation). These women are within their biological span

of childbearing allowing for a more accurate analysis of fertility. The dependent variable, number of children ever born, is a cumulative measure and is the only fertility variable available in the census tape.

Relative income is operationalized as the ratio of the husband's actual income to his estimated income. Estimated income is computed on the basis of a regression equation of actual income on occupation, education and age. Thus, husband's expected income is estimated separately for the ethnic groups as a linear composite using the group's unstandardised regression coefficients for occupation, education and age (Freedman, 1963; Bean and Wood, 1974).[1] This approach assumes that members of one's own ethnic group are a more salient socioeconomic reference group than are members of other ethnic groups. It also assumes that members of different ethnic groups would have different rates of income return from their occupation and education and occupation levels.

Relative income is a current measure, while as we indicated earlier, the fertility variable is cumulative. This inconsistency in the measures may pose problems of interpretation regarding cause and effect. We make the assumption that current relative income and permanent relative income are highly correlated; and that therefore, our measure is probably an adequate proxy for husband's relative income over his working life time.

Wife's income is included in this study as a proxy for the opportunity costs of childbearing. Wife's educational level

and husband's occupation (proportion in managerial work) are entered into the analysis as proxy measures for tastes for material goods on the assumption that with more education and professionalization, the couple would develop stronger tastes for material goods and a preference for having a small family. Two demographic control variables are added into the analysis: wife's age at first marriage and current age of the wife.

7. Hypotheses

In line with our discussion of minority group status and microeconomic effects, we have developed three hypotheses:

(1) the effect of relative income will be to raise the fertility of the Portuguese due to their Catholic subculture; for the Chinese, the effect of relative income will be negative since they do not possess a particularized ideology emphasizing large families;

(2) the opportunity costs of childbearing will serve to lower fertility among both the Chinese and the Portuguese;

(3) the effect of tastes for material goods will serve to lower the fertility of the Portuguese and the Chinese, but this effect will be stronger for the Chinese since they do not possess a normative system discouraging birth control.

These hypotheses are evaluated with the use of a regression decomposition formula, which breaks down the observed fertility differential between the British standard group and each of the two ethnic minorities into three components: a compositional component, a slope component, and an unexplained component.[2]

From a substantive point of view, the compositional component measures the extent to which a minority group would change its average family size if it were to assimilate the social demographic variable levels of the standard group. The slope component measures the interaction of ethnicity with each of the variables in the analysis. The interpretation of this component is as follows: the minority's fertility would change by a certain degree if it were to translate unit increases in each of the variables in the analysis in exactly the same way as do the British. For both components, the outcome for the minority may be: no change, a gain, or a decrease in average family size. The unexplained part is of no substantive relevance; it is assumed to reflect the influence of unmeasured variables (Jiobu and Marshall, 1977).

8. Results

Table 1 shows means and standard deviations of the variables in this study. Chinese husbands do better in terms of education and occupation as compared with the British. On the average, Chinese husbands had 13.2 years of education as compared to 12.4 years for the British. About 10 percent more of the Chinese than the British are in managerial work. Yet, despite their higher average status in education and occupation. Chinese husbands have significantly less income than the British. Chinese wives have lower average education, but they have a higher income than the British wives. Chinese wives married at a later age than the British. It may be that

TABLE 1. Means and Standard Deviations of the Study Variables

Variables	BRITISH		CHINESE		PORTUGUESE	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Husband's actual income	21868.69	13058.66	18929.99*	13525.53	17341.81	8494.42
Husband's relative income -	1.04	.54	1.01	.66	1.05	.49
Wife's actual income	6466.85	7555.43	8405.90*	7846.34	6023.60*	4975.58
Husband's education	12.4	3.6	13.2*	4.2	7.3*	3.8
Wife's education	12.3	3.0	11.8*	4.0	6.9*	3.5
Proportion managerial work --	.30	.46	.38*	.49	.06*	.24
Children ever born	2.04	1.53	1.88**	1.46	2.236**	1.51
Age of wife	34.3	8.1	34.7	7.1	34.6	8.0
Age at first marriage of wife	21.0	3.2	23.4*	3.9	21.3*	3.7

* Significantly different from the British at .05 level.
** Significantly different from the British at .10 level.
\- Ratio of actual to predicted income.
-- Proportion managerial work for husbands (1=managerial work, 0=non-managerial work).

later average age at marriage among the Chinese is due to their higher labor force participation, which may also explain their higher than average income. The Portuguese have a lower socioeconomic status than the British, as reflected in their lower average incomes, education, and proportion in managerial occupations. Portuguese women have tended to marry at a slightly older age than the British.

Multiple regression results are presented in Table 2. These equations serve as the basis for the decomposition analysis; they explain between 30 and 48 percent of the variance in children ever born.

9. Regression Decomposition Analysis

Table 3 shows the results of the regression decomposition analyses for the observed fertility differences between the British and Chinese (= .1600), and British and Portuguese (= -.196).

Examining the slope effects, if the Chinese were to translate unit increases for all variables in the analysis in the same way as do the British, the result would be a decline in Chinese average fertility of .2702 of a child. This process would imply an increase of only .0263 of a child for the Portuguese. From these results we might speculate that the insecurities associated with minority group status are quite pronounced for the Chinese, but not for the Portuguese, whose slope subtotal is wholly accounted by two variables, husband's managerial occupation (.1540), and wife's education (-.0975).

TABLE 2: Regressions of Children Ever Born for Three Ethnic Groups

Variables*	BRITISH	CHINESE	PORTUGUESE
Husband's Relative Income	.06 (.02)**	.13 (.06)	.07 (.02)
Wife's Actual Income	-3.1E-05 (-.15)***	-2.6E-05 (-.14)***	-2.7E-05 (-.09)
Wife's Education	-.05 (-.10)	-.05 (-.11)*	-.02 (-.04)
Proportion Managerial Work	-.02 (-.01)	-.09 (-.03)	-.46 (-.07)
Age of Wife	.10 (.56)***	.12 (.59)***	.10 (.55)***
Age at First Marriage of Wife	-.13 (-.28)***	-.11 (-.31)***	-.13 (-.33)***
Constant	2.1	1.0	1.8
R^2	.41	.48	.30
N	8276	391	302

* Standardized coefficients are in parentheses.
*** coefficient significant at .001 level.
** coefficient significant at .01 level.
* coefficient significant at .05 level.

TABLE 3: Regression Decomposition Analysis

OBSERVED FERTILITY DIFFERENTIAL	(British-Chinese) = .1600	(British-Portuguese) = -.1960
COMPOSITIONAL EFFECTS		
Husb. Rel. Inc.	.0029	-.0007
Wife Income	.0053	-.02185
Wife Education	-.0250	-.1890
Husb. Managerial	.0044	-.0576
Wife Age	-.0440	-.0300
Wife Age at Marriage	.288	.0390
SUBTOTALS	.2816	-.2511
SLOPE EFFECTS		
Husb. Rel. Inc.	-.0420	-.0052
Wife Income	-.0385	-.0251
Wife Education	0	-.0975
Husb. Managerial	-.0333	.1540
Wife Age	-.1520	0
Wife Age at Marriage	-.0710	0
SUBTOTALS	-.2702	.0263
UNEXPLAINED	-.9515	-.2705
TOTAL	.1597	-.1953

Relative income and wife's income are not very important for either group, showing very small negative effects on childbearing.

For the Chinese, the two most important slope effects are wife's current age and age at marriage of the wife; and surprisingly, the effects of opportunity costs are also relatively weak. Given the hypothesis of minority status insecurities we expected stronger negative effects on childbearing for both relative income and opportunity costs.

Concerning the compositional component, equalization of variable levels to those of the British would result in a .2816 increase in fertility for the Chinese and a .2511 reduction in family size for the Portuguese. Thus, the Portuguese's observed higher average fertility is largely due to discrepancies in compositional variables in relation to the British, and assimilation would entail a substantial reduction in their average family size. The most important variable in this process would be wife's education (contributing to a reduction in fertility of -.1890). Among Chinese couples their assimilation effect on fertility would be largely accounted by age at marriage of the wife (accounting for an increase in fertility of .2880).

Our hypothesis concerning relative income is marginally supported for the Chinese, insofar as slope effects adequately measure behavioural change. That is, if the Chinese were to translate unit gains in relative income in the same manner as do the British, their average family size would decline by a

very small degree, .04 of a child. However, the slope effects for this variable are also negative for the Portuguese; we expected a positive effect for this group. This result brings into question the idea that the effect of relative income for a pronatalist subculture is to increase fertility. For the Portuguese in Canada, this does not seem to be the case, as the effect is negative.

As predicted, opportunity costs, operationalized by wife's income, are consistently negative for both ethnic minority groups. This finding lends support to the notion that the wife's earnings are more important to the household income of the minorities versus the majority group.

We also predicted that for both minorities our proxy measures for tastes would be negative but stronger for the Chinese. The results pertaining to this expectation are mixed. For example, in the compomsitional component of Table 3 we find that the effects of wife's education are negative for both groups but are much stronger for the Portuguese. This suggests that if there occurred an equalization of wife's education to the level of the British, the Portuguese's preferences for children would diminish more than would those of the Chinese. The effect of husband's managerial occupation would suggest a similar conclusion since it is negative for the Portuguese and it is positive for the Chinese. Therefore, the assimilation of wife's education and husband's occupation to the levels of the British would imply a stronger preference for fewer children among the Portuguese than for the Chinese.

Concerning slope effects, the results suggest that there is no difference in the way British and Chinese couples translate unit increases in wife's education into a change in tastes for material goods and children. But if the Portuguese were to translate unit gains in wife's education in the same way as do the British, the outcome would be a change in preference for fewer children by .0975 of a child on the average. There would be a small positive change of .0333 of a child for Chinese couples, in connection with husband's occupation. For the Portuguese the effect of this variable would lead to a gain in their average family size by .1540 of a child.

10. Discussion

In this study, the cumulative fertility of Chinese and Portuguese minority groups in Canada are compared with that of the British. We hypothesized that the influence of relative income on fertility would be negative for the Chinese and positive for the Portuguese. It was found that the effect of this variable is negative for both minority groups, but very small. Concerning opportunity costs, our prediction of an inverse effect on childbearing was supported for both groups. Regarding tastes for material goods, we reasoned that with gains in wife's education and in husbands' occupation, tastes for material goods should increase and would consequently lead to a preference for small families, particularly for the Chinese. We found that the overall effect of increasing tastes

for material goods has a positive but small insignificant effect on childbearing for both groups.

The results of this study suggest that the Portuguese are not as strongly influenced by their Catholic religion as might be expected. For example, the effect of husband's relative income was shown to have negative effects on their fertility, and the overall effect of the slope component (our measure of insecurity) is positive, as expected, but it is very small. This also suggests that the effect of their Catholic subculture on fertility is quite negligible.

The Portuguese have an above average observed family size, while the Chinese show a below average fertility in relation to the British. As demonstrated with our decomposition analysis, the underlying mechanisms for these differentials suggest that if the Portuguese assimilated the social economic characteristics of the British, their fertility would decline substantially. For the Chinese, this process would result in a significant increase in fertility, but their minority status insecurities would override this effect and would actually produce a small decline in their overall fertility.

Future research is needed using more refined measures than those employed in this analysis. Of particular importance would be a more thorough investigation of both minority groups using more direct measures of subculture. An indication of the importance of culture may be gained from the fact that the unexplained component in the decomposition analysis is quite large (especially for the Chinese), and that age at marriage

accounts for a substantial portion of the Chinese's decomposition. To the extent that the timing of marriage and childbearing are determined by cultural factors, a more detailed examination is needed. Furthermore, future research would benefit by a greater emphasis on the integration of the microeconomic framework with other theories of minority group social demographic behaviour.

FOOTNOTES

1. Computations of Husband's Estimated Income:

   a) British:

   Estimated Income = -4971.30 + 5977 (Occupation) + 844.21 (Education) + 366.76 (Age)

   b) Portuguese:

   Estimated Income = 13950 + 1561 (Occupation) + 264 (Education) + 16 (Age)

   c) Chinese:

   Estimated Income = -1451.03 + 7064.14 (Occupation) + 506.59 (Education) + 283.14 (Age)

   Computation of Husband's Relative Income:

   Relative Income = Actual Income/Estimated Income

2. The full decomposition formula is as follows:

$$(\bar{Y}_{BR} - \bar{Y}_{MIN}) = 1/2 \quad \Sigma(\bar{X}_{i\,BR} - \bar{X}_{i\,MIN})\,(b_{i\,BR} + b_{i\,MIN}) +$$

$$1/2 \quad \Sigma(b_{i\,BR} - b_{i\,MIN})\,S_{i\,BR} + S_{i\,MIN}) +$$

$$[b_{o_{BR}} - b_{o_{MIN}} + 1/2\,\Sigma\,(b_{i\,BR} - b_{i\,MIN})\quad (\bar{X}_{i\,BR} - S_{i\,MIN} + \bar{X}_{i\,BR} - S_{i\,MIN})],$$

where $\bar{Y}_{BR}$ = Observed fertility of the British;

$\bar{Y}_{MIN}$ = Observed fertility of a minority group;

$\bar{X}_{i\,BR}$ = Average for variable i for the British;

$\bar{X}_{i\,MIN}$ = Average for variable i for the minority group;

$b_{i\,BR}$ = Slope for variable i for the British;

$b_{i\,MIN}$ = Slope for variable i for the minority;

$b_{o\,BR}$ = The intercept for the British equation;

$b_{o\,MIN}$ = The intercept for the minority equation;

$S_{i\,BR}$ = Standard deviation for variable i for the British;

$S_{i\,MIN}$ = Standard deviation for variable i for the minority group.

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